

C.) AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

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to
enter
JPH
2-13-04

1. (Currently Amended) A heat treatment process for restoring the properties of an aircraft engine article having a cast portion comprising a nickel-based superalloy having a nominal composition, in weight percent, of about 18.5 percent iron, about 18.5 percent chromium, about 5.1 percent niobium, about 3 percent molybdenum, about 0.9 percent titanium, about 0.5 percent aluminum, about 0.04 percent carbon, and balance nickel ~~of about 19 percent iron, about 18 percent chromium, about 5 percent terbium and niobium, about 3 percent molybdenum, about 0.9 percent titanium, about 0.5 percent aluminum, about 0.05 percent carbon, about 0.009 percent boron, a maximum of about 1 weight percent cobalt, a maximum of about 0.35 weight percent manganese, a maximum of about 0.35 weight percent silicon, a maximum of about 0.1 weight percent copper, balance nickel and impurities~~ and a forged portion that has been subjected to repeated thermal cycles below the δ solvus comprising the steps of:

providing an article comprising a nickel-based superalloy having a nominal composition, in weight percent, of about 18.5 percent iron, about 18.5 percent chromium, about 5.1 percent niobium, about 3 percent molybdenum, about 0.9 percent titanium, about 0.5 percent aluminum, about 0.04 percent carbon, and balance nickel ~~of about 19 percent iron, about 18 percent chromium, about 5 percent terbium and niobium, about 3 percent molybdenum, about 0.9 percent titanium, about 0.5 percent aluminum, about 0.05 percent carbon, about 0.009 percent boron, a maximum of about 1 weight percent cobalt, a maximum of about 0.35 weight percent manganese, a maximum of about 0.35 weight percent silicon, a maximum of about 0.1 weight percent copper, balance nickel and impurities~~ to be treated;

heating the article in a non-oxidative atmosphere, at a rate to minimize distortion of the article, to a temperature in a range of about 975°F to about 1025°F and stabilizing the temperature of the article in this temperature range;

within 60 minutes of stabilizing the article in the temperature range of about